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Propeller effect in action in the ultraluminous accreting magnetar M82 X-2

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Abstract

© 2016 The Authors Published by Oxford University Press on behalf of the Royal Astronomical Society.We present here the first convincing observational manifestation of a Magnetar-Like magnetic field in an accreting neutron star in binary System-The first pulsating ultraluminous X-Ray source X-2 in the galaxy M82. Using the Chandra X-Ray observatory data, we show that the source exhibit the bimodal distribution of the luminosity with Twowell-Defined peaks separated by a factor of 40. This behaviour can be interpreted as the action of the 'propeller regime' of accretion. The onset of the propeller in a 1.37 s pulsar at luminosity of ~1040 erg s-1 implies the dipole component of the neutron star magnetic field of ~1014 G.

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Keywords

Accretion, Accretion Discs-Magnetic Fields-Stars, Binaries, Individual, M82 X-2-Stars, Magnetars-X-Rays